

REMARKS

The Office Action mailed June 27, 2006, has been received and reviewed. Claims 13 through 26, and 33 through 45 are currently pending in the application. Claims 13 through 26, and 33 through 45 stand rejected. No claims are amended herein. Reconsideration is respectfully requested.

Drawings

The Examiner objected to the drawings which were filed on May 15, 2006 because they added FIGs. 4 and 5, but should have been labeled FIGs. 5 and 6. Applicant appreciates the clarification and has submitted herewith new drawings with the correct label. Reconsideration and withdrawal of the objection is requested.

Specification

The Examiner objected to the specification as lacking a description of FIGs. 4, 5 and 6. Applicant has amended the specification and submits no new matter was added. Reconsideration and withdrawal of the objection is requested.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on AAPA in view of U.S. Patent No. 6,683,007 to Yamasaki et al. and in further view of U.S. Patent No. 5,700,176 to Potter

Claims 13 through 21, 24 and 39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Admitted Prior Art (AARP) in view of Yamasaki et al. (U.S. Patent No. 6,683,007) in further view of Potter (U.S. Patent No. 5,700,176). Applicant respectfully traverses this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.**

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

Yamasaki discloses a method of etching a semiconductor wafer. The semiconductor is rotated in a horizontal plane while the etchant is dispensed from a nozzle toward the peripheral surface of the semiconductor wafer. (Yamasaki, Abstract). Potter discloses a method of manufacturing a field emission device. Applicant respectfully submits that the combination of admitted prior art, Yamasaki and Potter fails to teach or suggest each and every element of the presently claimed invention. Specifically, Applicant disagrees that its admitted prior art includes forming alignment marks in the peripheral area of a substrate during FED manufacture.

By way of contrast with the cited art, claim 13 of the presently claimed invention recites a "method of making an FED having a central active display area and a surrounding peripheral area, comprising: making a cathode assembly; applying an etchant locally to uncover a structure in the peripheral area of the cathode assembly, including moving an etchant dispenser or the cathode assembly relative to one another during the applying and applying the etchant within 200 microns of the structure; making an anode assembly, and assembling said cathode and anode assemblies."

Applicant respectfully submits that the proposed combination of references fails to teach or suggest "applying an etchant locally to uncover a structure in the peripheral area of the cathode assembly, including moving an etchant dispenser or the cathode assembly relative to one another during the applying and applying the etchant within 200 microns of the structure." Instead, the cited art lacks any teaching or suggestion of applying etchant within 200 microns of a structure as recited in claim 13 of the presently claimed invention. Further, applicant disagrees with the Examiner's statement that Yamasaki and the prior art infer applying etchant within 200 microns of the alignment structure as Yamasaki discloses applying etchant within 2.0 mm (2000 microns). (Yamasaki, col. 8, lines 13-22). As the combination of admitted prior art, Yamasaki and Potter fails to teach or suggest each and every element of the presently claimed invention, Applicant respectfully submits claim 13 as proposed to be amended is not rendered obvious by the cited art. Accordingly, claim 13 is allowable.

Claims 14-16 and 33-36 are further allowable as depending, either directly or indirectly, from allowable claim 13.

Claim 33 is further allowable as the cited art fails to teach or suggest “moving the etchant dispenser relative to the cathode assembly” while applying etchant. Instead, Yamasaki discloses the etchant dispenser is stationary while the wafer is moved. Potter and the admitted prior art lack any similar disclosure.

Claim 35 is further allowable as the cited art fails to teach or suggest “applying the etchant on the bond pads in elongated spray zones.”

Claim 36 is further allowable as the cited art fails to teach or suggest “spraying the etchant from a nozzle in the etchant dispenser while moving the nozzle linearly over the cathode assembly.” Instead, Yamasaki discloses the etchant dispenser is stationary while the wafer is moved. Potter and the admitted prior art lack any similar disclosure.

Independent claims 17, 20 and 25 are each allowable for at least the same reasons as allowable claim 13. The cited art lacks any teaching or suggestion of applying etchant within 200 microns of a structure. Each of claims 17, 20 and 25 include a similar recitation of “locally applying an etchant to uncover a structure in the peripheral region of the anode assembly, including moving an etchant dispenser or the anode assembly relative to one another during the applying and applying the etchant within 200 microns of the structure.” As the cited art fails to teach or suggest every element of claim 17, 20 or 25 of the presently claimed invention, the cited art cannot render claims 17, 20 and 25 obvious. Accordingly, claims 17, 20 and 25 are allowable.

Claims 18-19 and 37 – 41 are each allowable as depending, either directly or indirectly, from allowable claim 17.

Claim 37 is further allowable as the cited art fails to teach or suggest moving the etchant dispenser relative to the anode assembly. Instead, Yamasaki discloses the etchant dispenser is stationary while the wafer is moved. Potter and the admitted prior art lack any similar disclosure.

Claim 41 is further allowable as the cited art fails to teach or suggest spraying the etchant from a nozzle in the etchant dispenser while moving the nozzle linearly over the cathode

assembly. Instead, Yamasaki discloses the etchant dispenser is stationary while the wafer is moved. Potter and the admitted prior art lack any similar disclosure.

Claims 21-24 and 42-43 are each allowable as depending, either directly or indirectly, from allowable claim 20.

Claim 42 is further allowable as the cited art fails to teach or suggest moving the etchant dispenser relative to the substrate. Instead, Yamasaki discloses the etchant dispenser is stationary while the wafer is moved. Potter and the admitted prior art lack any similar disclosure.

Claims 26, 44 and 45 are each allowable as depending, either directly or indirectly, from allowable claim 25.

Claim 44 is further allowable as the cited art fails to teach or suggest moving the etchant dispenser relative to the substrate. Instead, Yamasaki discloses the etchant dispenser is stationary while the wafer is moved. Potter and the admitted prior art lack any similar disclosure.

Obviousness Rejection Based on AARP in view of U.S. Patent No. 6,202,658 to Fishkin et al. and in further view of U.S. Patent No. 5,700,176 to Potter

Claims 13 through 26, and 33 through 45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Admitted Prior Art (AARP) in view of Fishkin et al. (U.S. Patent No. 6,202,658) and further in view of Potter (U.S. Patent No. 5,700,176). Applicant respectfully traverses this rejection, as hereinafter set forth.

Fishkin discloses a device for cleaning a semiconductor wafer. Potter discloses a method of manufacturing a field emission device. Applicant respectfully submits that the combination of admitted prior art, Fishkin and Potter fails to teach or suggest each and every element of the presently claimed invention. Specifically, Applicant disagrees that its admitted prior art includes forming alignment marks in the peripheral area of a substrate during FED manufacture.

By way of contrast with the cited art, claim 13 of the presently claimed invention recites a "method of making an FED having a central active display area and a surrounding peripheral area, comprising: making a cathode assembly; applying an etchant locally to uncover a structure in the peripheral area of the cathode assembly, including moving an etchant dispenser or the cathode assembly relative to one another during the applying and applying the etchant within 200

microns of the structure; making an anode assembly, and assembling said cathode and anode assemblies.”

Applicant respectfully submits that the proposed combination of references fails to teach or suggest “applying an etchant locally to uncover a structure in the peripheral area of the cathode assembly, including moving an etchant dispenser or the cathode assembly relative to one another during the applying and applying the etchant within 200 microns of the structure.” Instead, the cited art lacks any teaching or suggestion of applying etchant within 200 microns of a structure as recited in claim 13 of the presently claimed invention. Further, Fishkin cannot infer this limitation as it fails to teach or suggest “applying an etchant locally to uncover a structure in the peripheral area of the cathode assembly.” As the combination of admitted prior art, Fishkin and Potter fails to teach or suggest each and every element of the presently claimed invention, Applicant respectfully submits claim 13 as proposed to be amended is not rendered obvious by the cited art. Accordingly, claim 13 is allowable.

Claims 14-16 and 33-36 are further allowable as depending, either directly or indirectly, from allowable claim 13.

Independent claims 17, 20 and 25 are each allowable for at least the same reasons as allowable claim 13. The cited art lacks any teaching or suggestion of applying etchant within 200 microns of a structure. Each of claims 17, 20 and 25 include a similar recitation of “locally applying an etchant to uncover a structure in the peripheral region of the anode assembly, including moving an etchant dispenser or the anode assembly relative to one another during the applying and applying the etchant within 200 microns of the structure.” As the cited art fails to teach or suggest every element of claim 17, 20 or 25 of the presently claimed invention, the cited art cannot render claims 17, 20 and 25 obvious. Accordingly, claims 17, 20 and 25 are allowable.

Claims 18-19 and 37 – 41 are each allowable as depending, either directly or indirectly, from allowable claim 17.

Claims 21-24 and 42-43 are each allowable as depending, either directly or indirectly, from allowable claim 20.

Claims 26, 44 and 45 are each allowable as depending, either directly or indirectly, from

allowable claim 25.

Claim Objections

Claims 16, 19 and 24 are objected to under 37 C.F.R. § 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant respectfully disagrees.

Claim 13 of the presently claimed invention recites in part “applying an etchant locally to uncover a structure in the peripheral area of the cathode assembly, including moving an etchant dispenser or the cathode assembly relative to one another during the applying and applying the etchant within 200 microns of the structure.” Claim 16 of the presently claimed invention recites “wherein locally applying an etchant comprises spraying a wet etchant on the structure without spraying the etchant elsewhere.” Applicant respectfully submits that “applying the etchant within 200 microns of the structure” wherein etchant is applied to a portion of the peripheral area other than the structure would fall within the scope of claim 1, but not claim 16. Thus, claim 16 further limits claim 1. Reconsideration and withdrawal of the rejection is requested.

Claim 17 of the presently claimed invention recites in part “locally applying an etchant to uncover a structure in the peripheral region of the anode assembly, including moving an etchant dispenser or the anode assembly relative to one another during the applying and applying the etchant within 200 microns of the structure.” Claim 19 of the presently claimed invention recites “wherein the step of locally applying an etchant comprises spraying a wet etchant on the structure while limiting spraying the etchant elsewhere.” Applicant respectfully submits that “applying the etchant within 200 microns of the structure” wherein etchant is applied to a portion of the peripheral region other than the structure would fall within the scope of claim 17, but not claim 19. Thus, claim 19 further limits claim 17. Reconsideration and withdrawal of the rejection is requested.

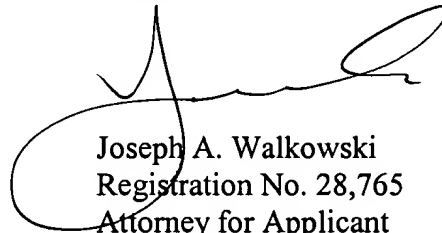
Claim 20 of the presently claimed invention recites in part “locally applying an etchant on the alignment marks, including moving an etchant dispenser or the substrate relative to one another during the applying and applying the etchant within 200 microns of the alignment marks.” Claim 24 of the presently claimed invention recites “wherein the step of locally

applying an etchant comprises spraying a wet etchant on the alignment marks without spraying the etchant elsewhere.” Applicant respectfully submits that “applying the etchant within 200 microns of the alignment marks” wherein etchant is applied to a portion of the peripheral area other than the alignment marks would fall within the scope of claim 20, but not claim 24. Thus, claim 24 further limits claim 20. Reconsideration and withdrawal of the rejection is requested.

CONCLUSION

Claims 13-26 and 33-45 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicant’s undersigned attorney.

Respectfully submitted,



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Date: August 28, 2006

Attachment: Replacement Sheet
Annotated Sheet Showing Changes

JAW/djp:lmh
Document in ProLaw

Amendments to the Drawings:

The attached sheet of drawings includes changes to mismarked FIGs. 4 and 5 which were filed on May 15, 2006. This sheet, which includes correctly numbered FIGS. 5 and 6, replaces the May 15, 2006 sheet including mismarked FIGS. 4 and 5.



TITLE: METHOD FOR MANUFACTURING A FLAT PANEL
DISPLAY USING LOCALIZED WET ETCHING

Inventor: James J. Alwan

Serial No.: 09/775,920

Docket No.: 2269-7156.1US

ANNOTATED SHEET SHOWING CHANGES

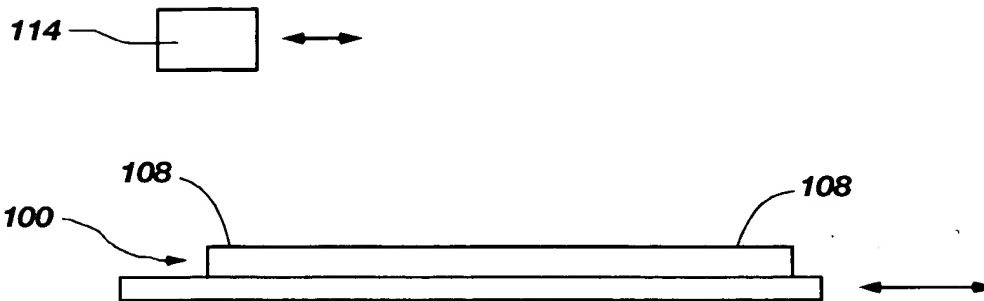


FIG. ~~4~~ 5

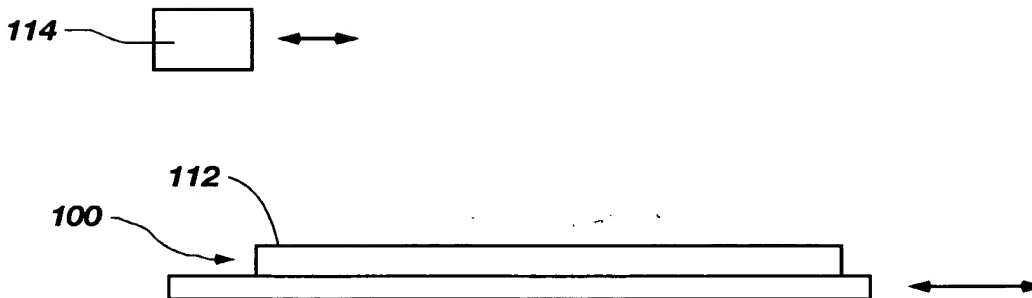


FIG. ~~5~~ 6